WHAT IS CLAIMED IS:

1. A method for pulsatile systemic delivery of an active fragment of parathyroid hormone (PTH) to a mammalian host, said method comprising:

inhalation through the mouth by the host of a dispersion of an N-terminal fragment of PTH having a length which results in a pulsatile serum profile characterized by a rapid rise followed by a rapid fall after a peak has been released.

2. A method as in claim 1, wherein the PTH fragment has 50 or fewer amino acids.

3. A method as in claim 1, wherein the PTH is a fragment consisting essentially of amino acids 1-34 or 1-38 of Table 1.

4. A method as in claim 1, wherein the total dosage of PTH fragment is in the range from 100 μg to 2,000 μg per day, resulting in systemic availability in the range from 50μg to 500 μg per day.

5. A method as in claim 1, wherein the PTH fragment dispersion comprises a dry powder including a bulking agent.

6. A method as in claim 1, wherein the PTH fragment dispersion comprises a nebulized liquid solution or suspension of the PTH fragment.

7. A method as in claim 1, wherein the PTH fragment dispersion comprises a dry powder and an aerosol propellant.

8. A method as in claim 1, further comprising administering vitamin D or dietary calcium to the host in order to treat osteoporosis.

9. A method for pulsatile systemic delivery of an active fragment of parathyroid hormone (PTH) to a patient, said method comprising:

(a) dispersing a preselected amount of the PTH fragment in a volume of gas to produce an aerosolized bolus;

(b) inhaling of the aerosolized bolus by the patient through the mouth and into the alveolar region of the lungs; and

repeating steps (a) and (b) a sufficient number of times until a desired total dosage of PTH fragment is delivered.

10. A method as in claim 9, wherein the PTH is a fragment consisting essentially of amino acids 1-34 or 1-38 of Table 1.

11. A method as in claim 9, wherein the aerosolized bolus contains from about 50 μg to 500 μg of PTH fragment and the total dosage is from about 100 μg to 2,000 μg per day, resulting in systemic availability in the range from 50 μg to 500 μg per day.

12. A method as in claim 9, wherein the aerosolized bolus has a volume in the range from 10 ml to 750 ml.

13. A method as in claim 9, wherein the PTH fragment is dispersed in an aerosol of particles in the size range from 0.5 μm to 5 μm.

14. A method as in claim 9, wherein the PTH fragment comprises a dry powder present in a bulking

agent, and dispersing comprises introducing the dry powder into a high velocity gas stream.

15. A method as in claim 9, wherein the PTH fragment comprises a liquid solution or suspension, and dispersing comprises nebulization of the liquid.

16. A method as in claim 9, wherein the PTH fragment comprises a liquid or powder present in a propellant, and dispersing comprises releasing the propellant through a nozzle to produce the dispersion.

17. A method as in claim 9, further comprising administering vitamin D or dietary calcium to the patient in order to treat osteoporosis.

18. A pharmaceutical composition comprising a biologically active N-terminal fragment of parathyroid hormone (PTH) present as a dry powder having a mean particulate size in the range from 0.5 μm to 5 μm; and a pharmaceutically acceptable dry bulking powder, wherein the PTH is present at from 1% to 25% by weight.

19. A pharmaceutical composition as in claim 18, wherein the bulking powder is composed of a material selected from the group consisting of sucrose, lactose, trehalose, HSA, glycine, cellobiose, dextran, maltotriose, pectin, sodium citrate, sodium ascorbate, and mannitol.

20. A pharmaceutical composition comprising a biologically active N-terminal fragment of parathyroid hormone (PTH) present as a powder having a mean particle size in the range from 0.5 μm to 5 μm present in an aerosol propellant.

21. A pharmaceutical composition as in claim 20, wherein the aerosol propellant is a chlorofluorocarbon or a hydrofluorocarbon.

22. A pharmaceutical composition suitable for nebulization, said composition comprising a biologically active fragment of parathyroid hormone present in an aqueous buffer at pH 4-6 and a concentration in the range from 1 mg/ml to 20 mg/ml.

23. A pharmaceutical composition as in claim 22, wherein the buffer is selected from the group consisting of acetate, ascorbate, and citrate, each at 5 mM to 50 mM.